SSI Technologies - Application Note DT-AN2

Digital Fluid-Trac™ (DFT-100) Ultrasonic Drum Level Gauge Troubleshooting

Measurement Technology

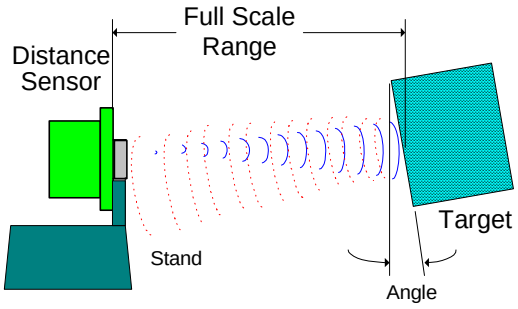
The Digital Fluid-Trac™ DFT-100 drum level gauge uses ultrasonic technology to generate a high-frequency sound wave and measures the time for the echo to reflect off the target fluid's surface and return. The distance from the Digital Fluid-Trac's sensor to the liquid is calculated based on the speed of sound.

The Digital Fluid-Trac™ DFT-100 is designed to work on ANSI MH2 standard 55 gallon drums (height of 32" for 55 gallon volumes).

For correct operation, the Digital Fluid-Trac™ DFT-100 must be mounted properly with no obstructions between the sensor and media being monitored.

1) If using the ¾" adapter, verify the yellow acoustic absorber disc (see photo below) is properly installed inside the adapter.

Level sensor mounting that is not perpendicular to the fluid causes a reduction in level sensor performance. As shown in the figure below, the amount of returned sound energy is dependent on mounting cone angle.



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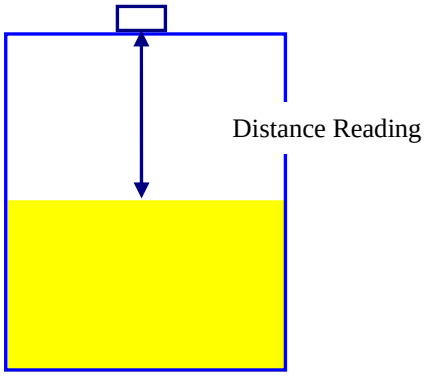
2) Verify the Digital Fluid-Trac™ DFT-100 mounting is perpendicular to the liquid. The drum must be stored in an upright position.



3) Verify there are no obstructions between the sensor head and the media being measured. If something is between the sensor and the media being tested, the sound wave will be reflected off the object and not the media resulting in incorrect level readings.

If the previous three conditions are met, perform the following bench test.

4) Simulate a Full (55 gallons) Reading
   a. Place the Digital Fluid-Trac™ flat on a table top.
   b. Press the On/Off button.
   c. The display should read 55 gallons (±2 gallons)

5) Simulate a 35 Gallon Reading
   a. Place the Digital Fluid-Trac™ 12 inches above the table top. Make sure the bottom of the sensor is perpendicular to the table top.
   b. Press the On/Off button.
   c. The display should read 35 gallons

6) Simulate an Empty (0 Gallon) Reading
   a. Place the Digital Fluid-Trac™ 32 inches above the table top. Make sure the bottom of the sensor is perpendicular to the table top.
   b. Press the On/Off button.
   c. The display should read 0 gallons

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